**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

## LISTING OF CLAIMS

1. (Previously Presented/Not Entered/Currently Amended) A method for detecting and measuring aberrations in an optical system comprising:

providing a test target with at least one open figure including a multiple component array of phase zones, wherein

the multiple phase zones are resolvable by the optical system and are arranged within the open figure so that their responses to lens aberrations are interrelated and the phase zones respond uniquely to specific aberrations depending on their location within the figure;

placing the test target in an object plane of a projection system;

imaging a photoresist film with the projection system; and

comparing the image in the photoresist film to a reference image without aberrations to detect aberrations in the optical system.

2. (Previously Presented) The method of claim 1 wherein the differences between the imaged photoresist and the reference image indicate the type and degree of aberration.

3. (Previously Presented) The method of claim 1 wherein the optical system comprises microelectronic photolithographic equipment for exposing a semiconductor wafer to a photomask carrying a pattern for a microelectronic device.

4. (Previously Presented) The method of claim 1 wherein size of the phase zones and the spaces between the phase zones are between 0.5 $\lambda$/NA to 1.5 $\lambda$./NA where $\lambda$ is the wavelength of the light exposing the target and NA is the numerical aperture of the exposure system.

5. (Previously Presented) The method of claim 1 wherein the size of the target is between 2.0 $\lambda$ /NA to 6.0 $\lambda$ /NA where $\lambda$ is the wavelength of the light exposing the target and NA is the numerical aperture of the exposure system.

6. (Original) The method of claim 1 wherein the phase zones are 180 degrees out of phase with respect to the rest of the target.

7. (Original) The method of claim 1 wherein the phase zones are etched into the surface of the target.

8. (Original) The method of claim 1 wherein the phase zones comprise at least two zones with one phase zone larger than the other phase zone.

9. (Original) The method of claim 1 wherein the phase zones comprise at least two zones of substantially the same size.

10. (Original) The method of claim 1 wherein the phase zones comprise a central phase zone and plurality of circumferential phase zones wherein the central phase zone is larger than the circumferential phase zones.

11. (Original) The method of claim 1 w herein the phase zones comprise a central phase zone and plurality of circumferential phase zones wherein the central phase zone is substantially the same size as the circumferential phase zones.

12. (Original) The method of claim 1 wherein the phase zones comprise a central phase zone and plurality of circumferential phase zones wherein the central phase zone is smaller than the circumferential phase zones.

13. (Original) The method of claim 1 wherein each phase zone is circular, rectangular, elliptical, or hexagonal.

14. (Original) The method of claim 1 w herein the target comprises a central phase zone and eight circumferential phase zones equally angularly spaced from each other for detecting astigmatism, coma, spherical aberration and three point aberration.

15. (Currently Amended) The method of claim 1 wherein the test target has at least two circumferential phase zones spaced 180 degrees apart from each other for detecting positive or negative lens ~~aberation~~aberration.

16. (Previously Presented) The method of claim 15 wherein the test target has at least two more circumferential phase zones spaced 180 apart from each other and 90 degrees from the first two circumferential phase zones for detecting positive and negative lens aberration.

17. (Previously Presented) The method of claim 15 wherein the test target has at least four circumferential phase zones located at 0, 90, 180, 270 degrees and two more phase zones at 135 and 315 degrees or 45 and 225 degrees to detect 45 degree astigmatism.

18. (Original) The method of claim 15 wherein the test target has phase zones with similar or different shapes.

19. (Previously Presented) The method of claim 1 wherein the test target has phase zones with circular, rectangular, elliptical, pentagonal, triangular or hexagonal shapes.

20. (Original) The method of claim 1 w herein the test target has phase zones with the same shape.

21. (Original) The method of claim 1 w herein the test target has a central phase zone with one shape and circumferential phase zones with a different shape.

22. (Previously Presented) A method of detecting aberrations of an optical imaging system, comprising the steps of:

arranging a test object in the object plane of the system;

providing a photoresist layer in the image plane of the system;

imaging the test object by means of the system and an imaging beam;

developing the photoresist layer, and

detecting the developed image by means of a scanning detection device having a resolution which is considerably larger than that of the imaging system, characterized in that use is made of a test object which comprises at least one open figure having a phase structure which is within resolution limits of the optical imaging system, wherein the image of this figure is compared to a reference image of known or no aberration in order to determine the type and amount of aberration in the optical imaging system.

23 – 39. (Cancelled)